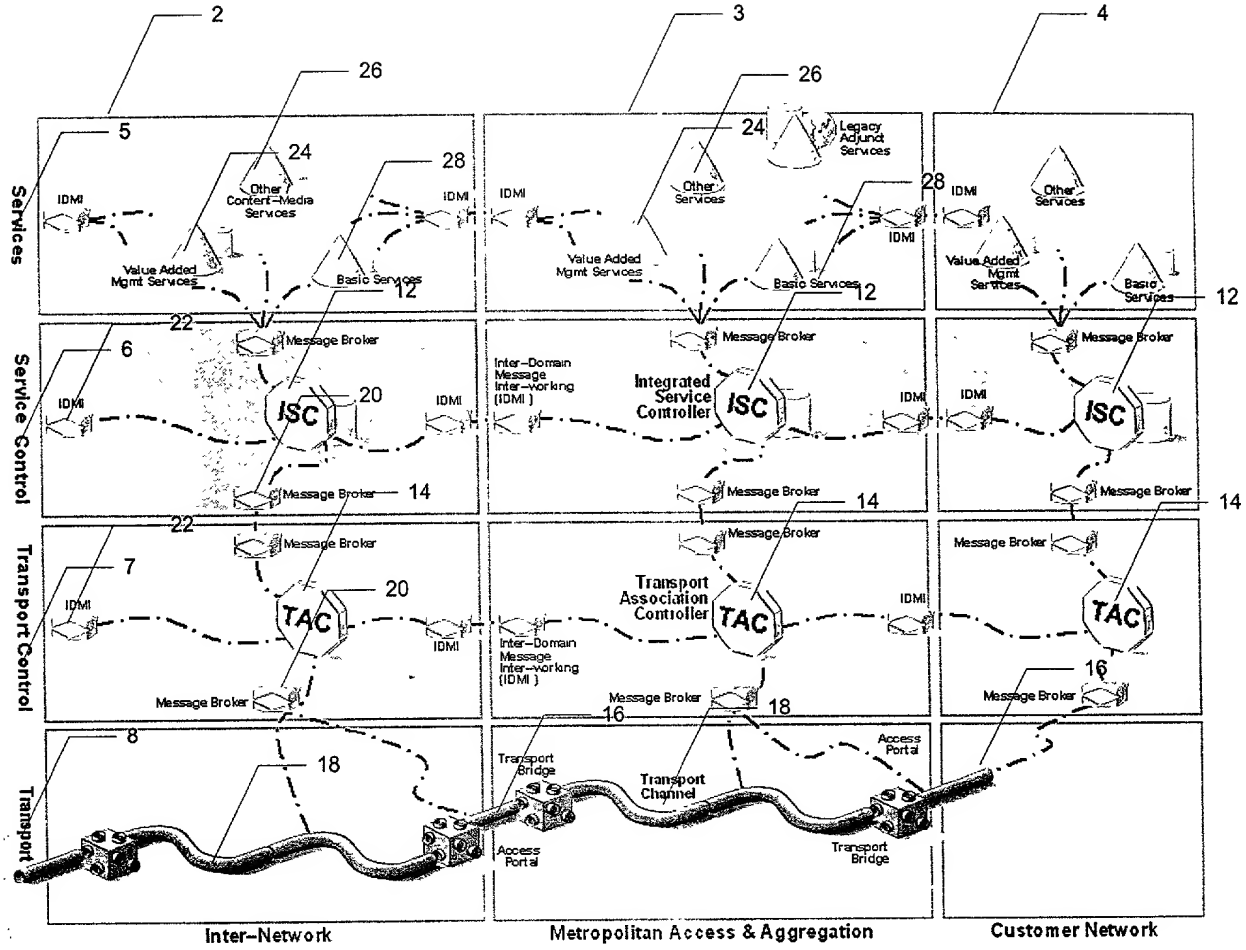
2
3
4
26
26
5
24
24
28
28
Services
IDMI
IDMI
IDMI
IDMI
Other Content-Media Services
Other Services
Legacy Adjunct Services
Other Services
Value Added Mgmt Services
Value Added Mgmt Services
Value Added Mgmt Services
Basic Services
12
Basic Services
12
Basic Services
12
22
6
Message Broker
Message Broker
Message Broker
Service Control
IDMI
ISC
20
IDMI
Inter-Domain Message Inter-working (IDMI)
Integrated Service Controller
ISC
IDMI
IDMI
ISC
Message Broker
14
Message Broker
14
Message Broker
14
22
7
Message Broker
Message Broker
Message Broker
Transport Control
IDMI
TAC
20
IDMI
Transport Association Controller
TAC
IDMI
TAC
Inter-Domain Message Inter-working (IDMI)
Message Broker
16
18
Message Broker
16
8
18
Access Portal
Transport Bridge
Transport Channel
Transport
Access Portal
Transport Bridge
Inter-Network
Metropolitan Access & Aggregation
Customer Network

Fig. 1

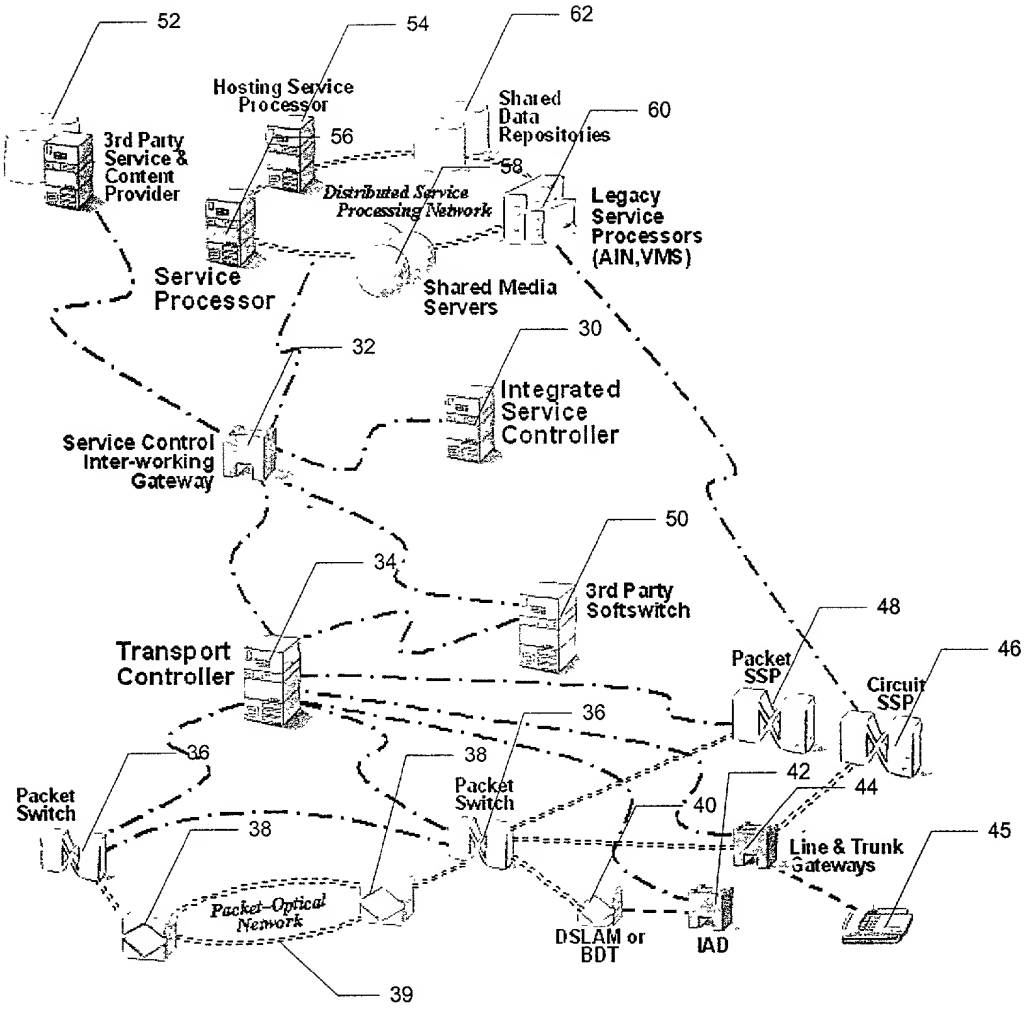
52
54
62
Hosting Service Processor
Shared Data Repositories
60
3rd Party Service & Content Provider
56
58
Distributed Service Processing Network
Legacy Service Processors (AIN,VMS)
Service Processor
Shared Media Servers
32
30
Integrated Service Controller
Service Control Inter-working Gateway
50
34
3rd Party Softswitch
48
Transport Controller
Packet SSP
46
Circuit SSP
36
36
38
42
44
Packet Switch
Packet Switch
40
38
45
Line & Trunk Gateways
Packet-Optical Network
DSLAM or BDT
IAD
39

Fig. 2

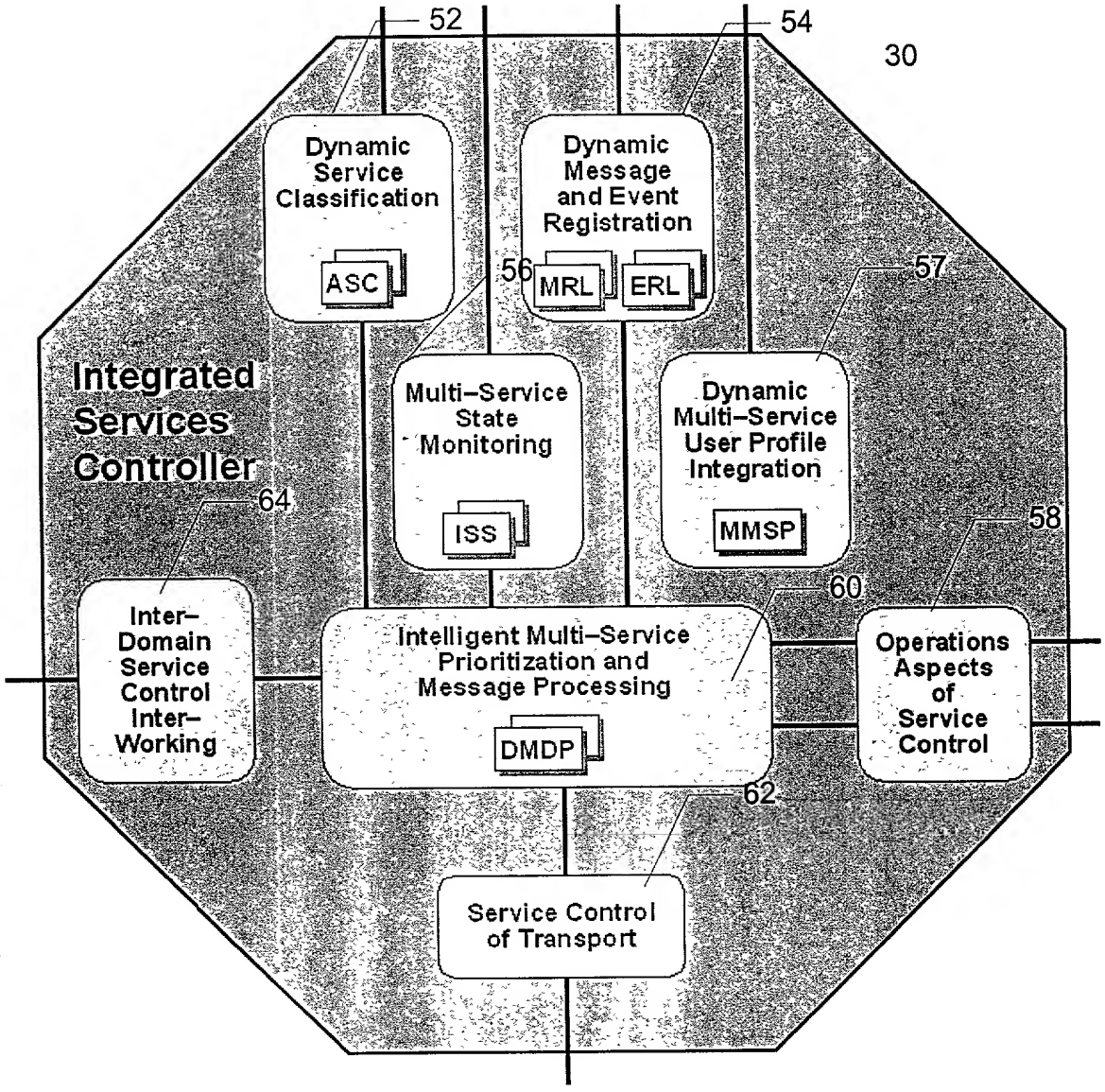
52
54
30
Dynamic Service Classification
ASC
Dynamic Message and Event Registration
MRL
ERL
56
57
Integrated Services Controller
64
Multi–Service State Monitoring
ISS
Dynamic Multi–Service User Profile Integration
MMSP
58
60
Inter–Domain Service Control Inter–Working
Intelligent Multi–Service Prioritization and Message Processing
DMDP
Operations Aspects of Service Control
62
Service Control of Transport

Fig. 3

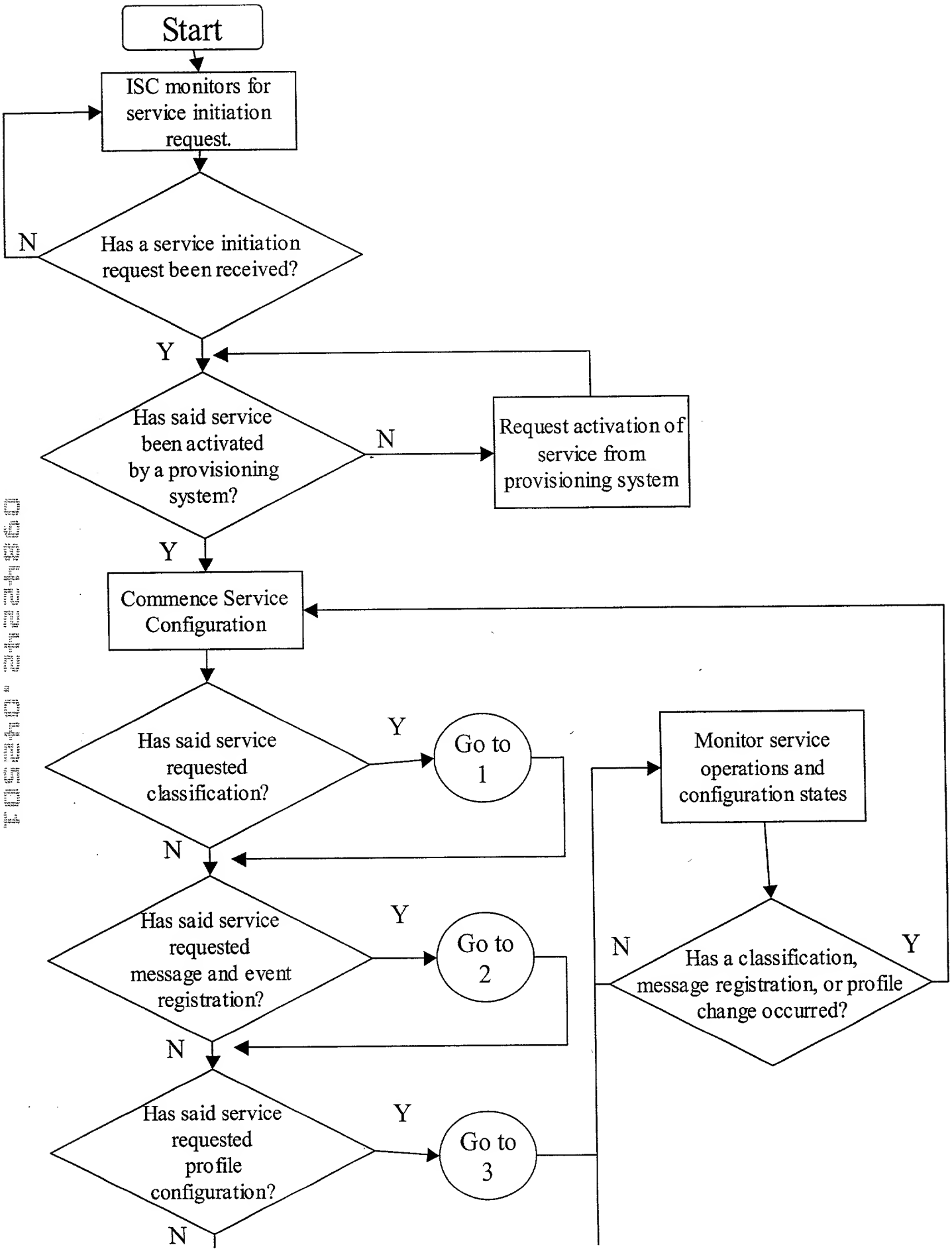
Start
ISC monitors for service initiation request.
Has a service initiation request been received?
N
Y
Has said service been activated by a provisioning system?
N
Request activation of service from provisioning system
Y
Commence Service Configuration
Has said service requested classification?
Y
Go to 1
N
Has said service requested message and event registration?
Y
Go to 2
N
Has said service requested profile configuration?
Y
Go to 3
N
Monitor service operations and configuration states
Has a classification, message registration, or profile change occurred?
N
Y

FIG. 4a

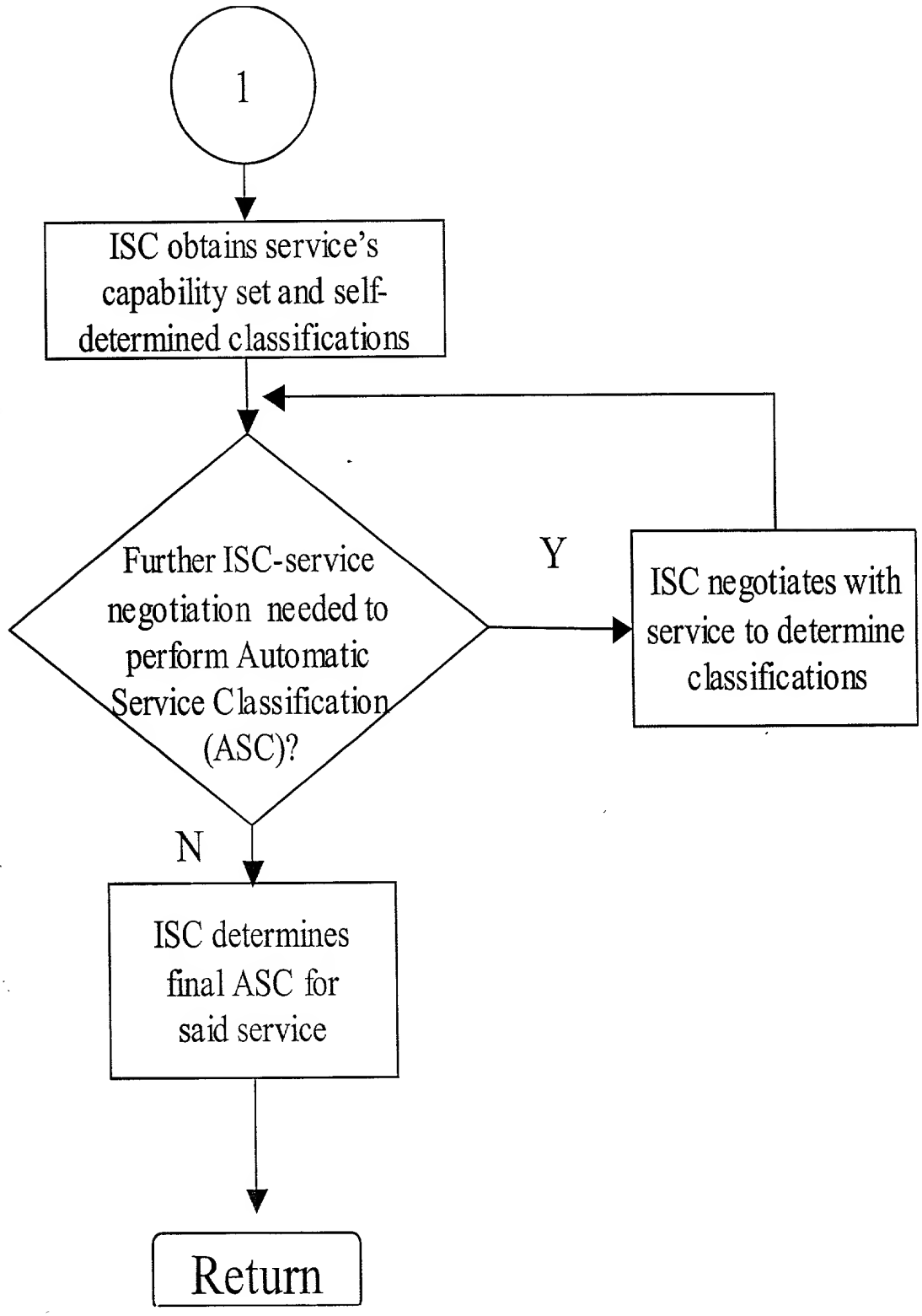
1
ISC obtains service's capability set and self-determined classifications
Further ISC-service negotiation needed to perform Automatic Service Classification (ASC)?
Y
ISC negotiates with service to determine classifications
N
ISC determines final ASC for said service
Return

FIG. 4b

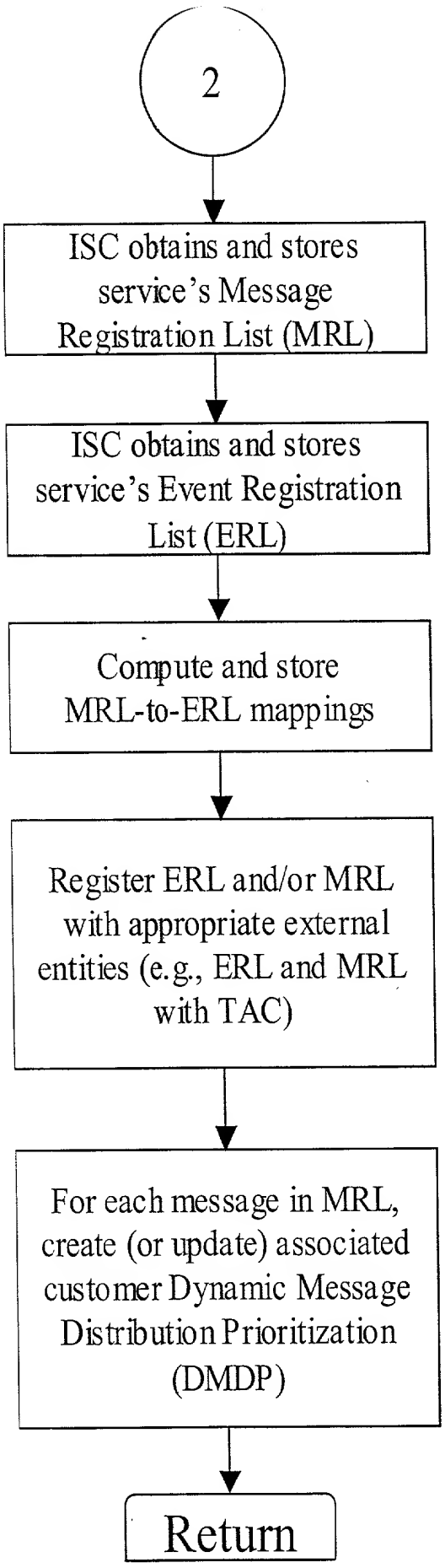
2
ISC obtains and stores service's Message Registration List (MRL)
ISC obtains and stores service's Event Registration List (ERL)
Compute and store MRL-to-ERL mappings
Register ERL and/or MRL with appropriate external entities (e.g., ERL and MRL with TAC)
For each message in MRL, create (or update) associated customer Dynamic Message Distribution Prioritization (DMDP)
Return

FIG. 4c

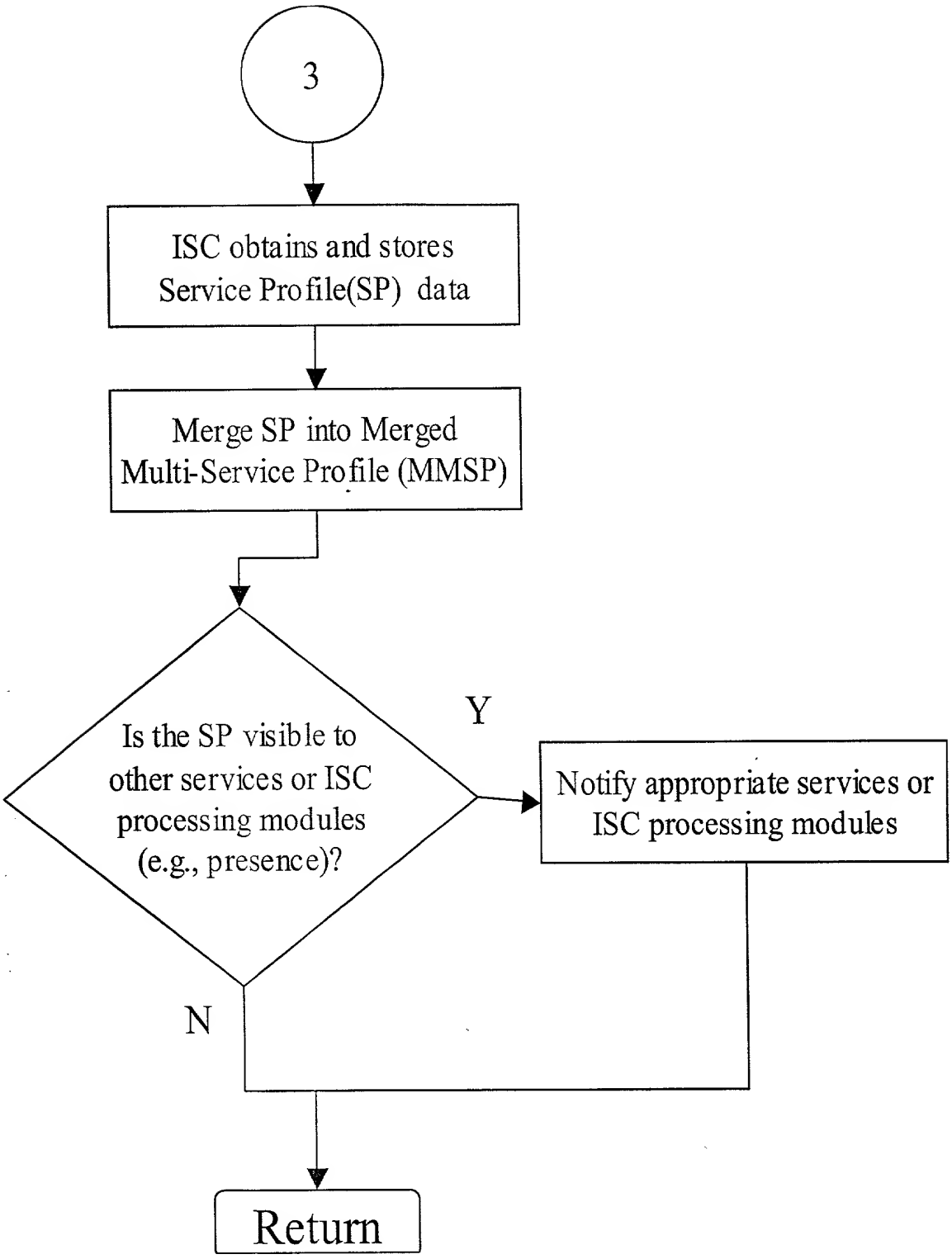
3
ISC obtains and stores Service Profile(SP) data
Merge SP into Merged Multi-Service Profile (MMSP)
Is the SP visible to other services or ISC processing modules (e.g., presence)?
Y
N
Notify appropriate services or ISC processing modules
Return

FIG. 4d

Figure 5: MMSP – Example Merged Multi–Service Service Profile:

MASTER Key Fields						Presence Service		Availability Service	Selective Call Forwarding Service		Priority Call Waiting Service			Do Not Disturb Service		Instant Messaging Service	No Solicitation Service	Other Service XYZ	
		Device User Name	Device System ID	???		Device State	Device Location		Service Parameter 1	Service Parameter 2		Service Parameter 1	Service Parameter 2		Service Parameter 1		Service Parameter 1		Service Parameter 1
Visibility to Other Services						Visible													
Global Service ID						LREFXB3975ZT													
		Kitchen Phone	XK87RW92K1			ON	Home												
		Bedroom Phone	XK87RT35B2			OFF	Home												
		Den Phone	XK87RP80D1			ON	Home												
		Mobile Phone 1	XK87RB31M1			ON	Office												
		Mobile Phone 2	XK87RG46M2			OFF	Travel												
Individual Name	Personal Phone Number (Home / Mobile)	Alternate Phone Number (Mobile, Pager, ...)	E-Mail Address	Internet (IP) Address	Business Phone Number			Visibility of Who Can See Me	Activated	Forwarding Phone Number	Activated	Calls with Individual are Interruptible	Interrupt Other Calls	Available	Conditional Hours	Available	Activated	Activated	Other Parameters
Default for ALL Individuals								NO	OFF	–	ON	ALL	ALL	OFF	6:00p–8:00p + 11:00p–7:00a	NO	Y		
Modifiability by Child ISC	Read–Only + ADD	Edit	Read–Only + ADD	Read–Only + ADD	Edit				L	Lock	Edit	Lock	Lock	Edit	Lock	Edit	Locked		
Jennifer Smith	532–690–5910	532–894–1230	Jsmith@universe.net	943.32.05.032	532–742–8234			YES				Y	NO			Y			
Konor Baguandu	723–940–7393	723–672–0049	Konor@qwest.net	732.00.32.532								NO	Y	ON					
Cheryl Vermille	493–883–6219	948–405–1120	Cvermi@galactic.com	211.43.88.534	948–233–8429				ON	303–747–8209		Y	Y			Y			
Christopher Johnson	303–494–3290	303–023–1029	Chris.johnson@qwest.net	131.77.35.957	303–541–7070						ON	Y	N			Y			
Bilutu Mashita	297–403–0492	297–593–9340	Bilutu.mashita@qwest.net	683.11.55.433				YES				NO	Y	ON					
...																			

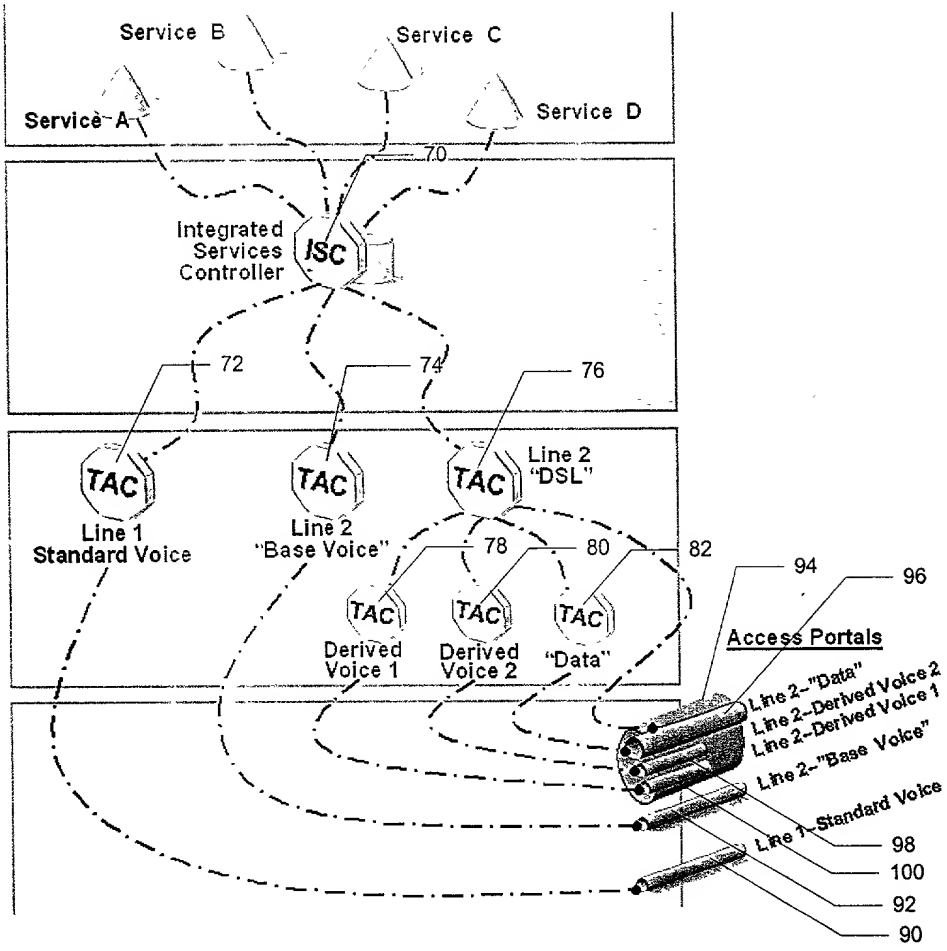
Service B
Service C
Service A
Service D
70
Integrated Services Controller
ISC
72
74
76
TAC
Line 1 Standard Voice
Line 2 "Base Voice"
Line 2 "DSL"
78
80
82
Derived Voice 1
Derived Voice 2
"Data"
94
96
Access Portals
Line 2-"Data"
Line 2-Derived Voice 2
Line 2-Derived Voice 1
Line 2-"Base Voice"
Line 1-Standard Voice
98
100
92
90

Fig. 6

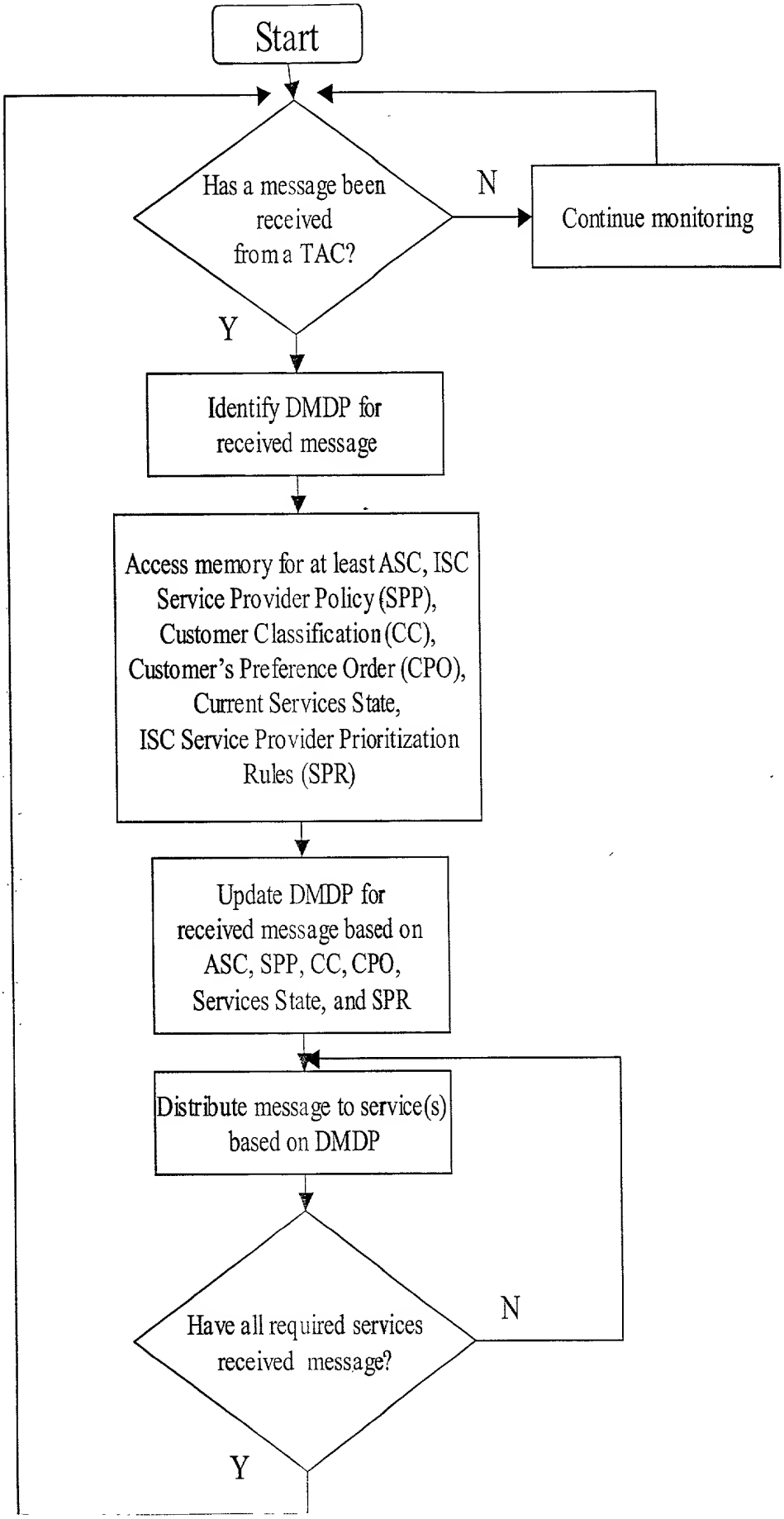
Start
Has a message been received from a TAC?
N
Continue monitoring
Y
Identify DMDP for received message
Access memory for at least ASC, ISC Service Provider Policy (SPP), Customer Classification (CC), Customer's Preference Order (CPO), Current Services State, ISC Service Provider Prioritization Rules (SPR)
Update DMDP for received message based on ASC, SPP, CC, CPO, Services State, and SPR
Distribute message to service(s) based on DMDP
Have all required services received message?
N
Y

FIG. 7

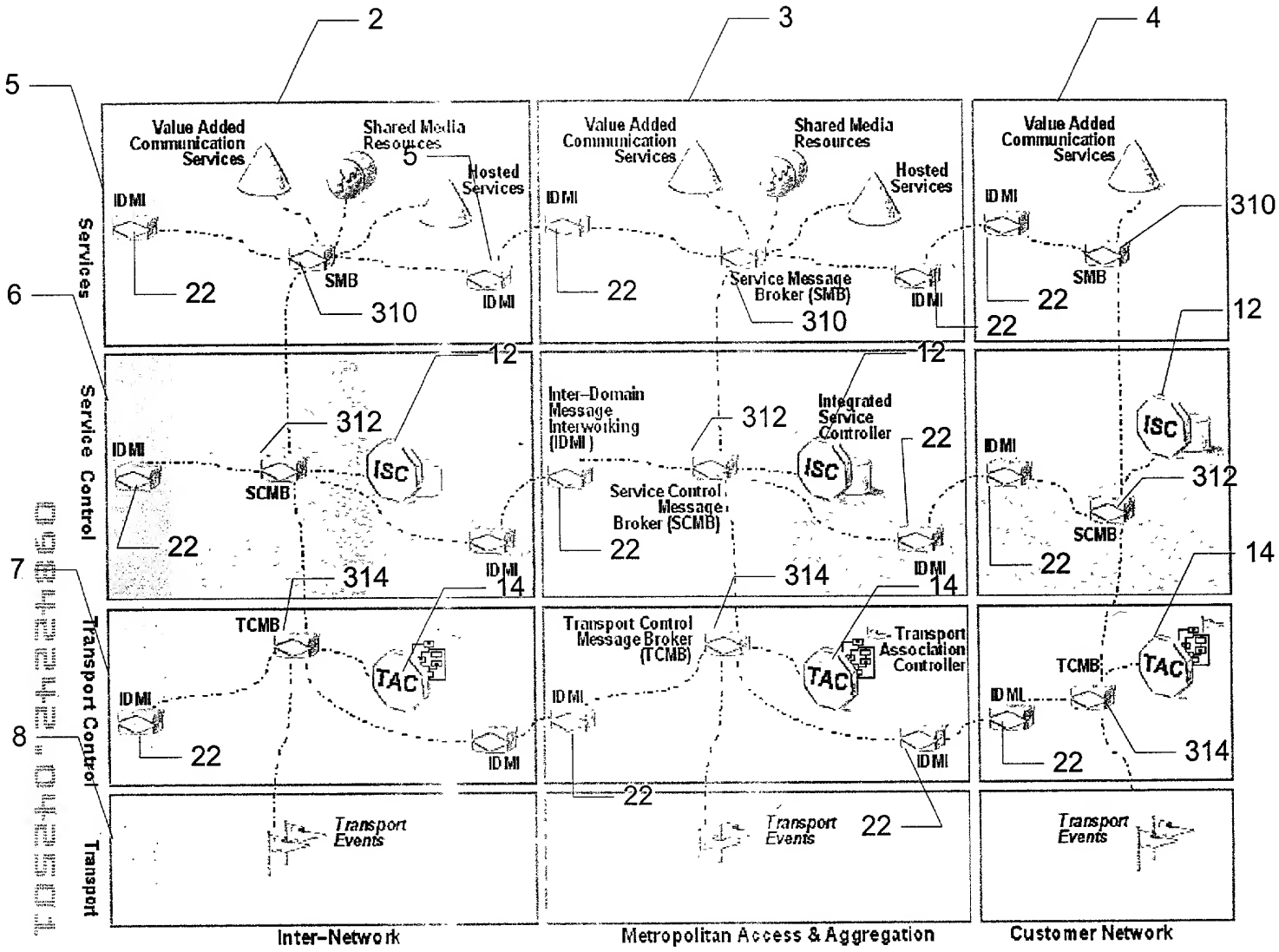
2
3
4
5
6
7
8
Services
Service Control
Transport Control
Transport
Value Added Communication Services
Shared Media Resources
Hosted Services
IDMI
SMB
Service Message Broker (SMB)
310
22
12
312
ISC
Inter-Domain Message Interworking (IDMI)
Integrated Service Controller
SCMB
Service Control Message Broker (SCMB)
314
14
TCMB
Transport Control Message Broker (TCMB)
TAC
Transport Association Controller
Transport Events
Inter-Network
Metropolitan Access & Aggregation
Customer Network

FIG. 8